



On the distribution of the Himalayan Stripe-necked Snake *Liopeltis rappi* (Günther, 1860) (Serpentes: Colubridae) in Nepal

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Abstract.—The distribution of the Himalayan Stripe-necked Snake (*Liopeltis rappi*) is poorly documented. We summarize the distribution of this little known snake in Nepal and provide a new locality record from Kabilas, Chitwan, Nepal. Compiled observations presented here suggest that the species is more widely distributed and we call for additional surveys and a systematic inventory.

Keywords. Chitwan-Annapurna landscape, conservation, reptile, biodiversity, South Asia, Squamata

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Introduction

The Himalayan Stripe-necked Snake *Liopeltis rappi* (Günther, 1860) is a small, slender, non venomous snake distributed through the Himalayas of Nepal and India (Smith 1943; Wallach et al. 2014). Günther (1860) described this species from Sikkim, India and originally it was described as *Ablabes rappi*. Later, Wall (1921) placed it in the genus *Liopeltis*. Reporting of its distribution has been sporadic both in time and space and it is an uncommonly encountered species. Previously it has been reported in India from Sikkim (Chhetri et al. 2011; Günther 1860), Darjeeling (Wall 1909), and Himanchal Pradesh (Saikia et al. 2007; Smith 1943) in India and Chitwan (Schleich and Kästle 2002; Shrestha 2001), Khotang, Terhathum, Shankhuwasabha (Rai 2003), Kaski (Shah and Tiwari 2004), and Palpa (Thapa 2016) in Nepal. The information on diversity and species richness of the ophidian fauna in Nepal is scanty. Nepalese snakes are represented by Palearctic, Ethiopian, and Oriental species (Schleich and Kästle 2002). Recently, Kästle et al. (2013) listed the occurrence of 82 species in Nepal, and questioned the occurrence of 14 snake species included in the list of Schleich and Kästle (2002) and Shah and Tiwari (2004) due to several taxonomic revisions. Most of the herpetological expeditions have

focused in eastern and central Nepal. These expeditions usually report new taxa or new distribution records for the country. For example, Sharma et al. (2013) and Pandey (2015) recently added two new snake species record viz *Bungarus sindamus walli* (Boulenger 1897) and *Oligodon cylcurus* (Cantor 1839) respectively for Nepal. We here add one more significant record of *Liopeltis rappi* from Kabilas, Chitwan which is a part of the Chitwan-Annapurna Landscape.

The Chitwan-Annapurna Landscape (CHAL) is located in central Nepal and it includes all or part of 19 districts covering an area of 32,057 km², with elevations ranging from 200 m to 8,091 m asl. The landscape is drained by eight major perennial rivers and their tributaries from the broader Gandaki River system. The CHAL experiences a range of climates from subtropical in the lowlands to alpine in the high mountains, and cold and dry in the trans-Himalayan region. It is suggested that climate change is a major cause behind changes in floral and faunal diversity in the CHAL (MoFSC 2015). In this regard, twelve permanent plots have been established in the CHAL to study the vulnerability of species due to climate change or other factors. These plots lie in Barandabhar, Kaule, and Kabilas of Chitwan district, Tilakpur and Asardi of Palpa district, Panchase of Syangja district and in Mustang district.



Fig. 1. *Liopeltis rappi* from Dhodeni, Kabilas, Chitwan. Photo Santosh Bhattarai.

Materials and Methods

We examined a recently dead specimen of *Liopeltis rappi* found at Kabilas-09, study site at Dhodeni, Chitwan (GPS: 27.78418°N 84.51605°E, elevation, 978 m, WGS: 1984) during survey work monitoring climate effects on one of the permanent plots. It was found dead on a trail in an abandoned cultivated field at 12:19 h on 16, July 2016. The cause of death was not readily apparent.

We recorded morphometric and meristic data for this specimen: dorsal scale rows at three points, approximately one head length posterior to the head, midbody, and one head length anterior to the vent. Ventral scales were counted following Dowling (1951), subcaudals and dorsal scales. Snout Vent Length (SVL) and Total Length (TTL) were measured with a thread, later scaling it to a

metallic ruler. Digital camera Canon-65 X optical zoom was used for photographic record, description of colors, and patterns. The broad habitat type and plant species were recorded at the place where the specimen was located.

Results

The small snake measured 462 mm SVL, 572 mm TTL and was identified as *Liopeltis rappi* (Fig. 1) based on the following combination of characteristics: head short and not distinct from the neck, round pupil, nostrils large and between two nasals, dorsal scales 15:15:15, all smooth; ventrals 176; subcaudals 60; all paired. There were six supralabials, with the 3rd-4th contacting the eye, 5th largest, a single preocular, and two post oculars. The dorsal

Table 1. Locality records of *Liopeltis rappi* in Nepal.

S.N.	Locality	Habitat	Coordinates	Elevation	District	Source
1	Lasune	Small town	27.14586°N, 87.46302°E	2,250 m	Tehrathum	Rai 2003
2	Chisapani /Nagdhunga	Paddy field	26.96709°N, 86.88333°E	1,600 m	Khotang	Rai 2003
3	Makalu Barun NP	—	27.66266°N, 87.10458°E	2,200 m	Sankhuwasabha	Rai 2003
4	Ghandruk	—	28.46638°N, 83.71421°E	2,972 m	Kaski	Shah and Tiwari 2004
5	Khaliban	Waste land	27.85624°N, 83.84418°E	813 m	Palpa	Thapa 2016
6	Chappani, Jhirbhanjyang	Waste land	27.89579°N, 83.56964°E	1,056 m	Palpa	Thapa 2016
7	Bandipokhara, Lipindevi	Waste land	27.86725°N, 83.50192°E	1,498 m	Palpa	Thapa 2016
8	Tansen, Bhusaldanda	Small town	27.87159°N, 83.55696°E	1,292 m	Palpa	Thapa 2016
9	Khanigaun, Khiluadada	Waste land	27.91685°N, 83.55087°E	1,139 m	Palpa	Thapa 2016
10	Dhodeni/Kabilas	Cultivated land	27.78418°N, 84.51605°E	978 m	Chitwan	This study

Distribution of *Liopeltis rappi* in Nepal

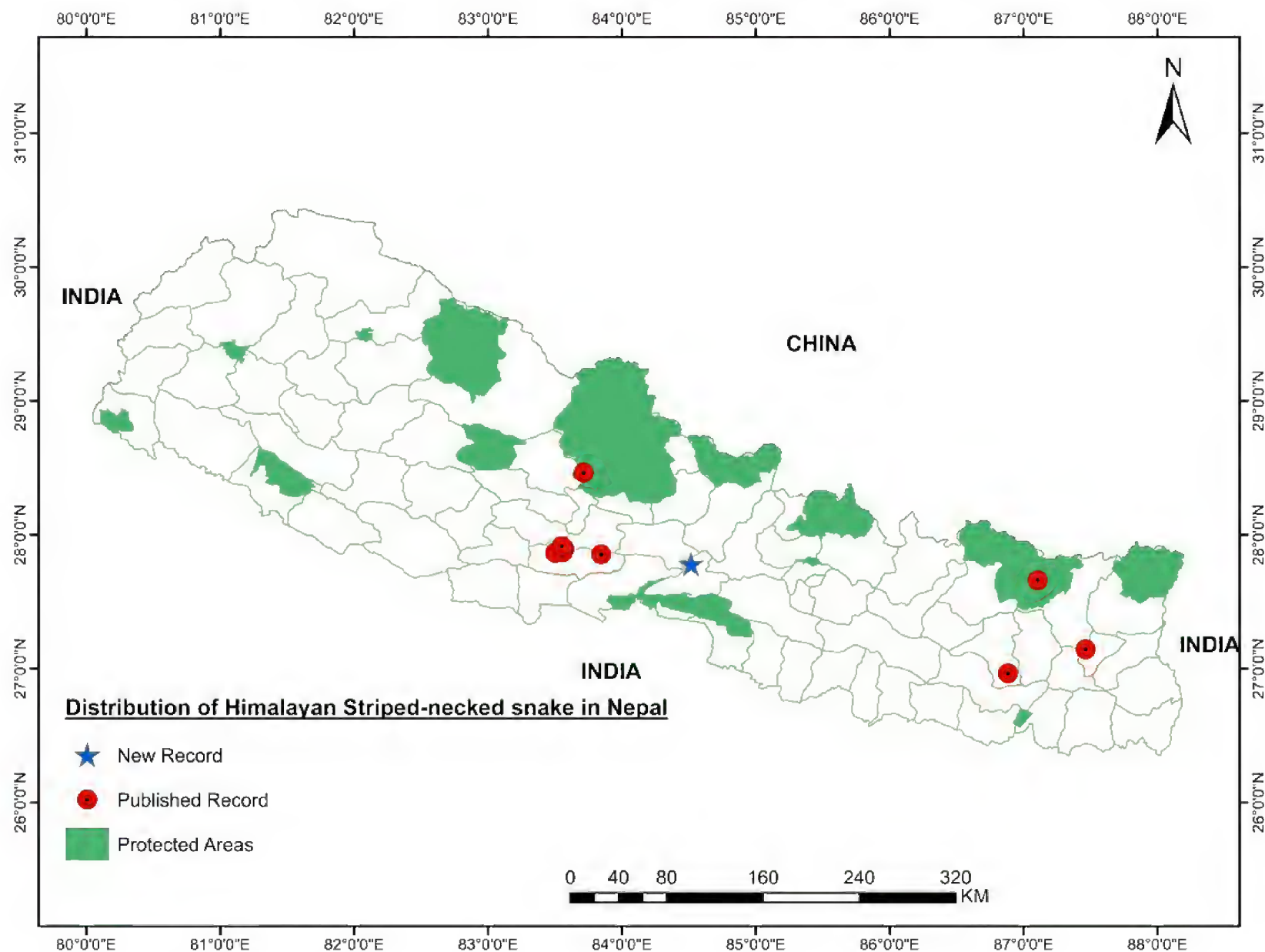


Fig. 2. Distribution of *Liopeltis rappi* in Nepal.

color was uniform coffee brown and the venter was yellow. The specimen represents the 10th locality record of *L. rappi* for Nepal. Figure 2 provides an overview of distribution of *L. rappi* in Nepal and Table 1 summarizes the locality records.

Habitat and herpetological community: The specimen was recorded in a seasonally abandoned cultivated land (Fig. 3). The broad habitat type of the locality was broadleaf mixed forest. The plant species recorded at the site were *Lantana camara*, *Eupatorium* sp., and *Ageratum* sp. Other herpetofauna recorded at the same locality comprised of anurans: *Duttaphrynus melanostictus* (Schneider 1799), *Microhyla ornata* (Duméril and Bibron 1841), *Sphaerotheca maskeyi* (Schleich and Anders 1998), *S. breviceps* (Schneider 1799), *Polypedates maculatus* (Gray 1830), *Amolops marmoratus* (Blyth 1855), and *Fejervarya* sp. (Bolkay 1915); lizards: *Calotes versicolor* (Daudin 1802), *Eutropis carinata* (Schneider 1801), *E. macularia* (Blyth 1853), and *Laudakia tuberculata* (Gray 1827); and snakes: *Amphiesma stolatum* (Linnaeus 1758), *Dendrelaphis tristis* (Daudin, 1803), and *Sibynophis collaris* (Gray 1853).

Discussion

Distribution: The closest published records to the CHAL for *Liopeltis rappi* are Ghandruk, Kaski 100 NW (Shah and Tiwari 2004) and Palpa 95 km W (Thapa 2016). Ear-

lier published records of *L. rappi* (Günther 1860; Anderson 1871; Boulenger 1890; Smith 1943; Krammer 1977; Shrestha 2001) did not mention data on locality records for Nepal. Shah (1995) and Schleich and Kästle (2002) reported the occurrence of *L. rappi* in Sauraha, Chitwan. Later, Shah, and Tiwari (2004) verified the record from Chitwan as a wrongly identified specimen and mentioned the new occurrence locality of this species from Ghandruk, Kaski. Captain (2010) also questioned the occurrence of *L. rappi* in Sauraha, Chitwan as this species is thought to be distributed at higher elevations. We agree with Shah and Tiwari (2004) and Captain (2010), hence, remove the occurrence of *L. rappi* from Sauraha and report our observation locality, Kabilas-09, Dhodeni as the first confirmed record from Chitwan. Our observation locality is 978 m asl and ranges within the elevation record of Thapa (2016). The elevational records range from 813 m to 2,972 m, demonstrating that the species probably exhibits a wider distribution in Nepal.

Conservation status: The IUCN (2016) has assessed *L. rappi* as a Data Deficient (DD) species and its population trend unknown. Of ten distribution localities, two localities Ghandruk and Makalu Barun National Park are within protected areas. Other localities are designated as either cultivated land, waste land, or small towns, and these sites were identified as important for the conservation of the species in Nepal, as the cultivated lands are being mechanized and villages are growing larger and



Fig. 3. Habitat of *Liopeltis rappi* at Dhodeni, Kabilas, Chitwan. Photo Santosh Bhattarai.

into towns. The present record of the dead specimen from cultivated land tends to show the possible ignorance of local people in the survival of the species. Thapa (2016) recorded five specimens from Palpa, of which four were found killed by local people and a single live specimen from Khaliban. People in this area kill snakes at the moment they encounter them as standard practice in the culture. This rampant killing of snakes, including *L. rappi* by local people, is an observed threat in the CHAL. All snakes are believed by the local people to be venomous despite the fact that only 17 species of snakes in Nepal are venomous (Sharma et al. 2013). Outreach activities among farmers, local communities, in schools, and colleges should focus on the good ecosystem function of snakes and basic identification tools of snakes would be instrumental in better protecting the snake fauna of the CHAL. Our finding indicates that a countrywide detailed herpetological survey would be beneficial to better understand the ecology, distribution pattern, threats, and conservation status of *L. rappi* in Nepal.

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